

WHAT IS CLAIMED IS

- 1 1. A hybrid transmission for variably producing a
2 transmission ratio, comprising:
3 first and second motor/generators; and
4 a differential mechanism constructed by two
5 double-pinion planetary gearsets which are coaxially
6 arranged and commonly employ common pinions, the
7 differential mechanism including at least four rotating
8 members, the rotating members being interlinked so that
9 rotating conditions of all of the rotating members are
10 determined when rotating conditions of two of the
11 rotating members are determined, four of the rotating
12 members being connected to an input from a prime mover,
13 an output to a driveline, first and second
14 mover/generators, respectively.
- 1 2. The hybrid transmission as claimed in claim 1, wherein
2 the first and second motor/generators are coaxially
3 arranged, and shafts of the first and second motor
4 generators are also coaxially arranged.
- 1 3. The hybrid transmission as claimed in claim 1, wherein
2 the prime mover is coaxially disposed at a side of the
3 differential mechanism, and the first and second
4 motor/generators are coaxially disposed at the other side
5 of the differential mechanism.
- 1 4. The hybrid transmission as claimed in claim 3, wherein
2 a relationship among revolution speeds of the four rotating
3 members is represented by a lever diagram,
4 a sun gear of the prime-mover-side double-pinion
5 planetary gearset being connected to the second

6 motor/generator through a center shaft, the sun gear being
7 a rotating member of a first revolution speed on the lever
8 diagram,

9 a sun gear of the motor/generator-side double-pinion
10 planetary gearset being connected to a motor/generator
11 through a hollow shaft, the sun gear being a rotating
12 member of a lowest revolution speed on the lever diagram,

13 a rotating member of a second revolution speed on the
14 lever diagram being connected to the input from the prime
15 mover,

16 a rotating member of a third revolution speed on the
17 lever diagram being connected to the output to the wheel
18 driveline.

1 5. The hybrid transmission as claimed in claim 1, wherein
2 the common pinions act as inner pinions of one of the two
3 double-pinion planetary gearsets and as outer pinions of
4 the other of the two double-pinion planetary gearsets.

1 6. The hybrid transmission as claimed in claim 4, further
2 comprising a brake for fixing the sun gear of the
3 prime-mover-side double-pinion planetary gearset, the brake
4 being disposed at an outer periphery of the first
5 motor/generator.

1 7. The hybrid transmission as claimed in claim 1, wherein
2 a gear pitch-circle diameter of the sun gear of the
3 prime-mover-side double-pinion planetary gearset is set
4 smaller than a gear pitch-circle diameter of the sun gear
5 of the motor/generator-side double-pinion planetary gearset,
6 and the common pinions act as outer pinions of the
7 prime-mover-side double-pinion planetary gearset and as

8 inner pinions of the motor/generator-side double-pinion
9 planetary gearset.

1 8. The hybrid transmission as claimed in claim 1, wherein
2 a gear pitch-circle diameter of the sun gear of the
3 motor/generator-side double-pinion planetary gearset is set
4 smaller than a gear pitch-circle diameter of the sun gear
5 of the prime-mover-side double-pinion planetary gearset,
6 and the common pinions act as outer pinions of the
7 motor/generator-side double-pinion planetary gearset and as
8 inner pinions of the prime-mover-side double-pinion
9 planetary gearset.

1 9. The hybrid transmission as claimed in claim 6, wherein
2 torque generated by the first and second motor/generators
3 is set at zero when the brake fixes the sun gear of the
4 prime-mover-side double-pinion planetary gearset.

1 10. The hybrid transmission as claimed in claim 6, wherein
2 the brake fixes the sun gear of the prime-mover-side
3 double-pinion planetary gearset when a vehicle equipped
4 with the hybrid transmission is stopping under an electric
5 vehicle mode where the vehicle runs only by means of the
6 first and second motor/generators.

1 11. The hybrid transmission as claimed in claim 1 wherein
2 the two double-pinion planetary gearsets employ a common
3 carrier which rotatably supports all of pinions of the two
4 double-pinion planetary gearsets and acts as the rotating
5 member connected to the output to the driveline.